



NUCLEAR REGULATORY COMMISSION

10 CFR Parts 50 and 52

[NRC-2022-0143]

Regulatory Guide: Criteria for Programmable Digital Devices in Safety-Related Systems of Nuclear Power Plants

AGENCY: Nuclear Regulatory Commission.

ACTION: Final guide; issuance.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is issuing Revision 4 to Regulatory Guide (RG), 1.152, "Criteria for Programmable Digital Devices in Safety-Related Systems of Nuclear Power Plants." This RG describes an approach that is acceptable to the staff of the NRC to meet regulatory requirements for promoting high functional reliability, design quality, and a secure development and operational environment (SDOE) for the use of programmable digital devices (PDDs) in the safety-related systems of nuclear power generating stations.

DATES: Revision 4 to RG 1.152 is available on **[INSERT DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

ADDRESSES: Please refer to Docket ID **NRC-2022-0143** when contacting the NRC about the availability of information regarding this document. You may obtain publicly available information related to this document using any of the following methods:

- **Federal Rulemaking Website:** Go to <https://www.regulations.gov> and search for Docket ID **NRC-2022-0143**. Address questions about Docket IDs in Regulations.gov to Stacy Schumann; telephone: 301-415-0624; email: Stacy.Schumann@nrc.gov. For technical questions, contact the individuals listed in the **FOR FURTHER INFORMATION CONTACT** section of this document.

- **NRC's Agencywide Documents Access and Management System**

(ADAMS): You may obtain publicly available documents online in the ADAMS Public Documents collection at <https://www.nrc.gov/reading-rm/adams.html>. To begin the

search, select “Begin Web-based ADAMS Search.” For problems with ADAMS, please contact the NRC’s Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737, or by email to PDR.Resource@nrc.gov. The ADAMS accession number for each document referenced (if it is available in ADAMS) is provided the first time that it is mentioned in this document.

- **NRC’s PDR:** The PDR, where you may examine and order copies of publicly available documents, is open by appointment. To make an appointment to visit the PDR, please send an email to PDR.Resource@nrc.gov or call 1-800-397-4209 or 301-415-4737, between 8 a.m. and 4 p.m. eastern time (ET), Monday through Friday, except Federal holidays.

Revision 4 to RG 1.152 and the regulatory analysis may be found in ADAMS under Accession Nos. ML23054A463 and ML22132A293, respectively.

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SUPPLEMENTARY INFORMATION:

I. Discussion

The NRC is issuing a revision in the NRC’s “Regulatory Guide” series. This series was developed to describe methods that are acceptable to the NRC staff for implementing specific parts of the agency’s regulations, to explain techniques that the staff uses in evaluating specific issues or postulated events, and to describe information that the staff needs in its review of applications for permits and licenses.

The proposed Revision 4 to RG 1.152 was issued with a temporary identification of Draft Regulatory Guide, (DG)-1374 (ADAMS Accession No. ML23012A242). This

revision (Revision 4) of the guide endorses, with some exceptions and clarifications, Institute of Electrical and Electronics Engineers (IEEE) Standard (Std) 7-4.3.2-2016, “IEEE Standard Criteria for Programmable Digital Devices in Safety Systems of Nuclear Power Generating Stations.” Specifically, this revision removes the previous SDOE guidance from this guide and instead endorses, with clarifications, the SDOE criteria within IEEE Std 7-4.3.2-2016. This revision also includes additional guidance for fault detection and self-diagnostics, if used, in digital instrumentation and controls systems. In addition, this revision endorses Annex D of IEEE Std 7-4.3.2-2016 and clarifies the applicability of the control of access guidance for safety-related PDDs.

II. Additional Information

The NRC published notice of the availability of DG-1374 in the *Federal Register* on March 10, 2023 (88 FR 14957), for a 30-day public comment period. The public comment period closed on April 10, 2023. Public comments on DG-1374 and the staff responses to the public comments are available in ADAMS under Accession No. ML23132A164.

As noted in the *Federal Register* on December 9, 2022 (87 FR 75671), this document is being published in the “Rules” section of the *Federal Register* to comply with publication requirements under 1 CFR chapter I.

III. Congressional Review Act

This RG is a rule as defined in the Congressional Review Act (5 U.S.C. 801-808). However, the Office of Management and Budget has not found it to be a major rule as defined in the Congressional Review Act.

IV. Backfitting, Forward Fitting, and Issue Finality

Issuance of RG 1.152, Revision 4, does not constitute backfitting as defined in § 50.109 of title 10 of the *Code of Federal Regulations* (10 CFR), “Backfitting,” and as described in NRC Management Directive (MD) 8.4, “Management of Backfitting, Forward Fitting, Issue Finality, and Information Requests”; affect the issue finality of an approval issued under 10 CFR part 52; or constitute forward fitting as defined in MD 8.4 because,

as explained in this RG, licensees are not required to comply with the positions set forth in this RG.

V. Submitting Suggestions for Improvement of Regulatory Guides

A member of the public may, at any time, submit suggestions to the NRC for improvement of existing RGs or for the development of new RGs. Suggestions can be submitted on the NRC's public website at <https://www.nrc.gov/reading-rm/doc-collections/reg-guides/contactus.html>. Suggestions will be considered in future updates and enhancements to the "Regulatory Guide" series.

Dated: July 19, 2023.

For the Nuclear Regulatory Commission.

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